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DUANE MORRIS, LLP
IP DEPARTMENT
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103-4196

EXAMINER	
PERVAN, MICHAEL	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/719,738	CHANG, YICHENG	
	Examiner	Art Unit	
	Michael Pervan	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *5,11 and 18* is/are allowed.

6)☒ Claim(s) *1-4,6-10,12-17 and 19-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/29/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 21 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In regards to claim 21, it recites, among other features, "the predetermined stressed pixels have a first level of brightness and the predetermined non-stressed pixels have a second level of brightness, wherein the first level is greater than the second level". However, the specification describes the stressed pixels as having brightness decay (pg. 12, lines 15-18), which means the non-stressed pixels would be brighter than the stressed pixels. Therefore, the first level cannot be greater than the second level as claimed. For purposes of examination, the examiner will interpret the claim as having the second level be greater than the first level.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regards to claim 21, it recites, among other features, "wherein the primary sub-frame comprises one or more predetermined non-stressed pixels". However in claim 1, the primary sub-frame comprises one or more stressed pixels. Therefore, it is unclear whether the primary sub-frame comprises stressed pixels or non-stressed pixels. For purposes of examination and in light of the specification, the examiner will interpret the claim to read as "wherein the primary sub-frame further comprises one or more predetermined non-stressed pixels".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-4, 8-10, 14-17 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen (US 7,034,811) in view of Waterman (US 2005/0052394).

In regards to claim 1, Allen discloses a method for compensating stressed pixels on a display device, that includes:

receiving a video data input for displaying a video image frame at a first frequency (col. 18, lines 31-32);

displaying a primary sub-frame representing at least a part of the video image frame (col. 18, lines 42-46), the primary sub-frame having one or more predetermined stressed pixels whose brightness being expected to be compensated (col. 18, lines 47-49); and

displaying at least one secondary sub-frame representing at least a part of the video image frame and having the predetermined stressed pixels thereon with predetermined compensating brightness (col. 18, lines 50-53),

Allen does not disclose wherein the primary and secondary sub-frames are displayed sequentially at a second frequency and combined to produce a single image so that the separation of the two sub-frames is undetected by a viewer.

Waterman discloses wherein the primary and secondary sub-frames are displayed sequentially at a second frequency and combined to produce a single image so that the separation of the two sub-frames is not detectable by a viewer (paragraph 36, lines 4-13).

It would have been obvious at the time of invention to modify Allen with the teachings of Waterman, receiving video at a first frequency and displaying sub-frames at a second frequency such that the video displayed appears to be at the first frequency, by incorporating teachings of Waterman into the device of Allen because it will ensure long term reliability and prevent degradation of the LCD (paragraph 36, lines 12-13).

In regards to claims 2, 9 and 16, Allen does not disclose the primary and secondary sub-frames are displayed with the second frequency so that an effective display frequency is equivalent to the first frequency.

Waterman discloses the primary and secondary sub-frames are displayed with the second frequency so that an effective display frequency is equivalent to the first frequency (paragraph 36, lines 9-13).

It would have been obvious at the time of invention to modify Allen with the teachings of Waterman, receiving video at a first frequency and displaying sub-frames at a second frequency such that the video displayed appears to be at the first frequency, by incorporating teachings of Waterman into the device of Allen because it will ensure long term reliability and prevent degradation of the LCD (paragraph 36, lines 12-13).

In regards to claim 3, Allen discloses detecting one or more pixels in the video image frame as the stressed pixels (col. 16, line 66–col. 16, line 11).

In regards to claims 4, 10 and 17, Allen discloses determining the compensating brightness for each of the stressed pixels (col. 16, line 66–col. 16, line 11).

In regards to claim 8, Allen discloses a method for compensating stressed pixels on a light-emitting diode (LED) based display device, that includes:

receiving a video data input for displaying a video image frame at a first frequency (col. 18, lines 31-32);

detecting one or more pixels in the video image frame as stressed pixels (col. 16, line 66–col. 16, line 11);

displaying a primary sub-frame representing at least a part of the video image frame (col. 18, lines 42-46), the primary sub-frame having one or more stressed pixels with at least one of whose display parameters being degraded due to an accumulative usage of the LED display device (col. 9, lines 47-55; a stressed pixel (defective pixel) can be producing less intensity, which is due to usage); and

displaying at least one secondary sub-frame representing at least a part of the video image frame and complementing the primary sub-frame and having the detected stressed pixels thereon with the degraded display parameter compensated (col. 18, lines 50-53).

Allen does not disclose wherein the primary and secondary sub-frames are displayed sequentially at a second frequency and combined to produce a single image so that a viewer perceives the video image frame being displayed without detecting the two sub-frames.

Waterman discloses wherein the primary and secondary sub-frames are displayed sequentially at a second frequency and combined to produce a single image so that the video image frame is displayed without making the sequential displaying of the two sub-frames detectable by a viewer (paragraph 36, lines 9-13).

It would have been obvious at the time of invention to modify Allen with the teachings of Waterman, receiving video at a first frequency and displaying sub-frames at a second frequency such that the video displayed appears to be at the first frequency, by incorporating teachings of Waterman into the device of Allen because it

will ensure long term reliability and prevent degradation of the LCD (paragraph 36, lines 12-13).

In regards to claim 14, Allen discloses the degraded display parameter is a brightness level of the pixel (col. 9, lines 47-55; the degraded (decayed) display parameter is a brightness (intensity) level).

In regards to claim 15, Allen discloses a system for compensating stressed pixels on a light-emitting diode (LED) based display device (col. 2, line 53-col. 3 line 12 and col. 6, lines 22-30), that includes:

means for receiving a video data input for displaying a video image frame at a first frequency (col. 18, lines 31-32);

means for processing information for one or more stressed pixels in the video image frame (col. 16, lines 8-11),

wherein the primary sub-frame has one or more stressed pixels with at least one of whose display parameters being degraded due to an accumulative usage of the LED display device (col. 9, lines 47-55; a stressed pixel (defective pixel) can be producing less intensity, which is due to usage), and the secondary sub-frame has the detected stressed pixels thereon with the degraded display parameter compensated (col. 18, lines 50-53).

Allen does not disclose means for displaying a primary sub-frame and at least one secondary sub-frame sequentially at a second frequency so that the secondary sub-frame is undetected by a viewer.

Waterman discloses means for displaying a primary sub-frame and at least one secondary sub-frame sequentially at a second frequency so as to combine the primary and secondary sub-frames to produce a single image so that the secondary sub-frame is not separately detectable by a viewer (paragraph 36, lines 9-13).

It would have been obvious at the time of invention to modify Allen with the teachings of Waterman, receiving video at a first frequency and displaying sub-frames at a second frequency such that the video displayed appears to be at the first frequency, by incorporating teachings of Waterman into the device of Allen because it will ensure long term reliability and prevent degradation of the LCD (paragraph 36, lines 12-13).

In regards to claim 20, Allen discloses the means for processing is a video processor or controller with predetermined processing algorithms embedded therein (col. 16, lines 8-11).

In regards to claim 21, Allen discloses the method of claim 1, wherein the primary sub-frame comprises one or more predetermined non-stressed pixels, the predetermined stressed pixels have a first level of brightness and the predetermined non-stressed pixels have a second level of brightness, wherein the first level is greater than the second level (col. 15, lines 66-col. 16, line 11; since the brightness (intensity) of the stressed (defective) pixels are increased, then their brightness levels must be lower than the non-stressed pixels).

In regards to claim 22, Allen discloses the method of claim 1, wherein the primary sub-frame and the secondary sub-frame include different brightnesses (col. 15, lines 66-col. 16, line 11 and col. 18, lines 50-53).

7. Claims 6-7, 12-13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen in view of Waterman in further view of Dehmlow (6,552,735; as submitted by applicant).

In regards to claims 6, 12 and 19, Allen and Waterman do not disclose the determining further comprises:

providing a database supplying accumulative pixel data for one or more stressed pixels, the accumulative pixel data indicating at least an accumulative brightness of each pixel; and

comparing one or more pixels in the video image frame against the database to identify the stressed pixels.

Dehmlow discloses providing a database supplying accumulative pixel data for one or more stressed pixels (col. 2, lines 58-60; accumulative pixel data (history of pixel status) is provided in a database (memory)), the accumulative pixel data indicating at least an accumulative brightness of each pixel (col. 2, lines 60-65; accumulated pixel data (history of pixel status) indicates accumulative brightness (luminance) as long as it is a function of use) and comparing one or more pixels in the video image frame against the database to identify the stressed pixels (col. 2, lines 63-65; stressed pixels are identified by using the database (memory) which indicates accumulative brightness (luminance)).

It would have been obvious at the time of invention to modify Allen and Waterman with the teachings of Dehmlow, accumulating pixel data, because it allows for more accurate compensation, yielding a better picture.

In regards to claims 7 and 13, Allen and Waterman do not disclose accumulating pixel data in the database with regard to the identified stressed pixel based on the pixel data thereof for displaying the video image frame.

Dehmlow discloses accumulating pixel data in the database with regard to the identified stressed pixel based on the pixel data thereof for displaying the video image frame (col. 2, lines 58-65; pixel data (status) is accumulated in the database (memory) with regard to identified stressed pixels (luminance decay)).

It would have been obvious at the time of invention to modify Allen and Waterman with the teachings of Dehmlow, accumulating pixel data, because it allows for more accurate compensation, yielding a better picture.

Allowable Subject Matter

8. Claims 5, 11 and 18 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Examiner was unable to find a reference or combination of references that taught the limitations of claims 5, 11 and 18.

Response to Arguments

9. Applicant's arguments with respect to claims 1-4, 6-10, 12-17 and 19-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pervan whose telephone number is (571) 272-0910. The examiner can normally be reached on Monday - Friday between 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MVP
Aug. 1, 2007

AMR A. AWAD
SUPERVISORY PATENT EXAMINER